

Response to Office Action mailed June 14, 2007

Serial No. 10/516,574; filed July 13, 2005

Inventor: Sang-Uk Kim

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Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) ~~In a spindle motor for a hard disk drive (HDD), an~~ An aero and fluid hybrid dynamic pressure bearing of a spindle motor for a hard disk drive (HDD), comprising:
~~_____ an aero dynamic pressure bearing which is formed in a structure that there are provided a~~
~~including a~~ disk shaped bearing assembly, and a certain pore surrounding the bearing assembly
~~and which includes with~~ a plurality of grooves extending thereinto, wherein the aero dynamic
~~pressure bearing and forms an air layer having a certain strength so that an air flow that supports~~
a load between a hub and the bearing assembly ~~after~~ while the hub is operated; and
~~_____ a fluid dynamic pressure bearing which is formed in a structure that a plurality of grooves~~
~~are formed in at least one surface among having a spindle shaft with a plurality of grooves~~
~~extending thereinto, a sleeve surrounding the spindle shaft, and a thrust plate cooperating with an~~
~~end of the spindle shaft, and which has a pore a void formed between the spindle shaft and the~~
~~sleeve, wherein the void is filled with fluid for rotatably supporting the hub and filled with a~~
~~certain fluid.~~
2. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein a groove is formed in at least one among of an upper horizontal surface of the bearing assembly, a lower horizontal surface of the bearing assembly, and an outer surface of the bearing assembly.
3. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein said fluid has a certain viscosity and forms a discharging path of a for static electricity.

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4. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein said hub has a groove in at least one among of a lower portion of the hub, an inner surface of the hub, and an inner surface of the a bushing surrounding the hub thrust.

5. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein said spindle shaft ~~includes~~ a spindle shaft is formed in one of a spherical shape, a semi-circular shape, a conical shape, or and a cylindrical shape.

6. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein, during hub operation or when the hub is stopped, in said spindle shaft, a bearing assembly of the aero dynamic pressure bearing does not make a mechanical frictionally engage the with a hub which is an opponent element when the hub is operated or is stopped.

7. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein said fluid dynamic pressure bearing is rotated with respect to a hub shaft which passes vertically through the interior of the fluid dynamic pressure bearing. same in a vertical direction.

8. (Currently Amended) The hybrid dynamic pressure bearing of claim 1, wherein said fluid dynamic pressure bearing forms a fluid dynamic pressure between the fluid dynamic pressure bearing assembly and the spindle shaft.

9. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which forms defines a lower construction portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base, and fixes a platter in an upper surface, and has a back yoke supporting a ring shaped permanent magnet within an inner lower surface portion of the hub, and a stator which has having a plurality of teeth protruding radially therefrom, ones of the plurality of teeth having a

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coil wound thereon, and protruded in a direction of an outer surface for thereby forming a radial construction, a the fluid and air hybrid dynamic pressure bearing, comprising:

_____ an aero dynamic pressure bearing which is formed in a structure that there are provided a including a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, and which includes a plurality of grooves and wherein the aero dynamic bearing assembly forms an air layer having a certain strength so that an air flow that supports a load between a hub and the bearing assembly after while the hub is operated;

_____ a fluid dynamic pressure bearing which is formed in a structure that a plurality of grooves are formed in at least one surface among having a spindle shaft with a plurality of grooves formed thereinto, a sleeve surrounding the spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, and which has a pore a void formed between the spindle shaft and the sleeve, the void being filled with fluid for rotatably supporting the hub and filled with a certain fluid; and

_____ a bushing thrust provided between respective ones of the fluid dynamic pressure bearing, a ring shaped permanent magnet, a back yoke which supports the permanent magnet, a the bearing assembly of the aero dynamic pressure bearing, and the stator.

10. (Currently Amended) The bearing of claim 9, wherein said hub includes a fluid dynamic pressure bearing in the interior of the same and is rotatably installed in an upper portion of the base.

11. (Withdrawn) The bearing of claim 9, wherein said groove is provided by at least one.

12. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein said fluid has a certain viscosity and forms a discharging path of a for static electricity.

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13. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein said hub has a groove extending into at least one among of a lower portion of the hub, an inner surface of the hub, and an inner surface of the bushing-thrust.

14. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein said spindle shaft ~~includes a spindle shaft~~ is formed in one of a spherical shape, a semi-circular shape, a conical shape, ~~or~~ and a cylindrical shape.

15. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein said fluid dynamic pressure bearing ~~is rotated~~ rotates with respect to the spindle shaft ~~positioned in the interior~~.

16. (Currently Amended) The bearing of claim 9, wherein ~~in~~ said fluid dynamic pressure bearing, a fluid dynamic pressure is formed between the sleeve and the spindle shaft in said fluid dynamic pressure bearing.

17. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein the center of the fluid dynamic pressure bearing is supported in a radial direction and a thrust direction.

18. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein ~~said~~ aero dynamic pressure bearing ~~is~~ installed ~~in~~ a space ~~formed~~ by ~~the~~ aero dynamic pressure bearing ~~assembly~~ ~~and~~ ~~the~~ ~~hub~~ ~~for~~ ~~thereby~~ forming an aero dynamic pressure is formed between the hub and the aero dynamic pressure bearing assembly when the hub is rotated.

19. (Currently Amended) The hybrid dynamic pressure bearing of claim 9, wherein said aero dynamic pressure bearing is installed in ~~A~~ a lower portion of the hub, ~~distanced~~ is spaced from

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the fluid dynamic pressure bearing, ~~in an inner surface for thereby receiving a and receives~~ thrust and radial direction loads based on a non-contact method.

20. (Currently Amended) ~~In~~ A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which ~~forms~~ defines a lower ~~construction~~ portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base, ~~and fixes a platter in an upper surface, a back yoke supporting and has a ring shaped~~ permanent magnet within an inner lower surface of the hub, and a stator ~~which has~~ having a plurality of teeth protruding radially therefrom, ones of the plurality of teeth having a coil wound thereon, ~~and protruded in a direction of an outer surface for thereby forming a radial~~ ~~construction, a~~ the fluid and air hybrid dynamic pressure bearing, comprising:

~~an aero dynamic pressure bearing which is formed in a structure that there are provided a~~ including a ~~disk shaped bearing assembly~~ having a plurality of grooves extending thereinto, and ~~a certain pore-void~~ surrounding the bearing assembly, and which ~~includes a plurality of~~ grooves ~~wherein the aero dynamic pressure bearing~~ and forms an air layer having a certain strength so that an air flow ~~that~~ supports a load between a ~~the~~ hub and the bearing assembly after while the hub is operated;

~~a fluid dynamic pressure bearing which is implemented in a structure that a plurality of~~ grooves are formed in at least one surface in the ~~having a~~ spindle shaft, a sleeve surrounding the ~~same~~ spindle shaft, and a thrust plate ~~cooperating with an end of the~~ spindle shaft, and a certain ~~fluid for~~ defining a discharging path of a ~~for~~ static electricity is filled in a pore formed ~~being~~ provided ~~between the~~ spindle shaft and the sleeve, wherein the ~~fluid for~~ rotatably supporting ~~supports~~ the hub and forms ~~ing~~ a fluid dynamic pressure ~~between~~ around the ~~spindle shaft, wherein the~~ fluid dynamic pressure bearing ~~is fixed with respect to the~~ spindle shaft and is ~~provided in an upper portion of the hub, and wherein the~~ fluid dynamic pressure bearing ~~is fixed~~ about a hub shaft which passes vertically through the hub; and

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~~_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said bushing thrust being provided between respective ones of the ring shaped permanent magnet, a the back yoke supporting the ring shaped permanent magnet, a-the bearing assembly of the aero dynamic pressure bearing, and the stator.~~

21. (Withdrawn) The bearing of claim 20, wherein said groove is provided by more than at least one.

22. (Currently Amended) The hybrid dynamic pressure bearing of claim 20, wherein said hub has a groove extends into at least one among of a lower portion of the hub, an inner surface of the hub, and an inner surface of the bushing thrust.

23. (Currently Amended) The hybrid dynamic pressure bearing of claim 20, wherein said spindle shaft includes a the spindle shaft is formed in one of a spherical shape, a semi-circular shape, a conical shape, or and a cylindrical shape.

24. (Currently Amended) The bearing of claim 20, wherein said aero dynamic pressure bearing is installed in a space formed by the aero dynamic pressure bearing assembly and the hub, and an aero dynamic pressure is formed between the hub and the aero dynamic pressure bearing assembly when the hub is rotated.

25. (Currently Amended) The hybrid dynamic pressure bearing of claim 20, wherein said aero dynamic pressure bearing is installed in a lower portion of the hub, is distanced spaced from the fluid dynamic pressure bearing, in an inner surface and receives a thrust and radially direction directed loads based on a non-contact method.

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26. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a
spindle motor for a hard disk drive which includes a base which forms defines a lower
construction portion of the spindle motor, a hub which is rotatably installed in an upper portion
of the base , and fixes a platter in an upper surface, and has a ring shaped permanent magnet
housed in an inner lower surface of the hub, and a stator which has a plurality of teeth protruding
radially therefrom, ones of the plurality of teeth having a coil wound thereon, and protruded in a
direction of an outer surface for thereby forming a radial construction, a the fluid and air hybrid
dynamic pressure bearing, comprising:

an aero dynamic pressure bearing which is formed in a structure that there are provided
including a disk shaped bearing assembly having a plurality of grooves extending thereinto, and
a certain porevoid surrounding the bearing assembly, and which includes a plurality of grooves
and wherein the aero dynamic pressure bearing forms an air layer having a certain strength so
that an air flow that supports a load between a the hub and the bearing assembly after while
the hub is operated;

a fluid dynamic pressure bearing which is implemented in a structure that a plurality of
grooves are formed in at least one surface in the including a spindle shaft with a plurality of
grooves extending thereinto, a sleeve surrounding the same spindle shaft, and a thrust plate
cooperating with an end of the spindle shaft, and a certain fluid for defining a discharging path of
a for static electricity is filled being provided in a pore-void formed between the spindle shaft
and the sleeve, the fluid for rotatably supporting the hub and forming a fluid dynamic pressure
between-around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with
respect to the spindle shaft and formed in an upper portion of the hub, and wherein the fluid
dynamic pressure bearing is fixed about a hub shaft which passes vertically through an end of an
interior of the hub; and

a bushing thrust which is implemented in a structure that the fluid dynamic pressure
bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in

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which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said busing thrust being provided between respective ones of the ring shaped permanent magnet, a back yoke supporting the ring shaped permanent magnet, ~~a~~ the bearing assembly of the aero dynamic pressure bearing, and the stator, wherein the sleeve is fixed to the hub, and the spindle shaft is fixed to the bearing assembly, and wherein the sleeve is rotated together with the hub.

27. (Currently Amended) ~~In~~ A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which ~~forms~~ defines a lower construction portion of the spindle motor, a hub which is rotatably installed in ~~an~~ the upper portion of the base, and ~~fixes~~ a platter in ~~an~~ upper surface, and has a ring shaped permanent magnet housed in an inner lower surface the hub, and a stator which has a plurality of radially protruding teeth, ones of the radially protruding teeth having a coil wound thereon and protruded in a direction of an outer surface for thereby forming a radial construction, ~~a~~ the fluid and air hybrid dynamic pressure bearing, comprising:

~~an aero dynamic pressure bearing which is formed in a structure that there are provided~~ including a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly and which includes a plurality of grooves, wherein the aero dynamic pressure bearing and forms an air layer having a certain strength so that an air flow that supports a load between ~~a~~ the hub and the bearing assembly after while the hub is operated;

~~a fluid dynamic pressure bearing including a spindle shaft with which is implemented in a structure that a plurality of grooves extending thereinto, are formed in at least one surface in the spindle shaft, a sleeve surrounding the same spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, and a certain fluid for defining a discharging path of a for static~~ electricity is filled being provided in a pore void formed between the spindle shaft and the sleeve, wherein the fluid for rotatably supporting the hub and formsing a fluid dynamic pressure

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~~between-around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft and formed in an upper portion of the hub, and wherein the fluid dynamic pressure bearing is fixed about a hub shaft which passes vertically through the hub; and~~
~~_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said bushing thrust being provided between respective ones of the ring shaped permanent magnet, a back yoke supporting the permanent magnet, a bearing assembly of the aero dynamic pressure bearing, and the stator, wherein the sleeve is fixed to the hub, and the spindle shaft which is downwardly extended extending is and fixed to the bearing assembly, and the sleeve is rotated rotates together with the hub.~~

28. (Currently Amended) ~~In-~~ A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which ~~forms-~~ defines a lower ~~construction~~ portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base, and ~~fixes~~ a platter in an upper surface, and has a ring shaped permanent magnet housed in an inner lower surface ~~the hub~~, and a stator which has a plurality of radially protruding teeth, ~~ones of the radially protruding teeth~~ having a coil wound thereon, ~~and protruded in a direction of an outer surface for thereby forming a radial construction,~~ a ~~the~~ fluid and air hybrid dynamic pressure bearing, comprising:

~~_____ an aero dynamic pressure bearing including which is formed in a structure that there are provided a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, wherein the aero dynamic pressure bearing and which includes a plurality of grooves and forms an air layer having a certain strength so that an air flow that supports a load between a the hub and the bearing assembly after while the hub is operated;~~

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_____ a fluid dynamic pressure bearing including a spindle shaft having which is implemented in a structure that a plurality of grooves are formed therein, at least one surface in the spindle shaft, a sleeve surrounding the same spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, and a certain fluid defining for a discharging path of a for static electricity is filled being provided in a pore-void formed between the spindle shaft and the sleeve, wherein the fluid for rotatably supporting the hub and forming a fluid dynamic pressure between-around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft and is provided in an upper portion of the hub, and wherein the fluid dynamic pressure bearing is fixed about a hub shaft passing vertically through the hub; and

_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said bushing thrust being provided between respective ones of the ring shaped permanent magnet, a back yoke supporting the permanent magnet, a the bearing assembly of the aero dynamic pressure bearing, and the stator, wherein the sleeve is fixed to the hub, and the spindle shaft which is extends upwardly and downwardly extended and is fixed to the bearing assembly, and wherein the sleeve is rotated rotates together with the hub.

29. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which forms defines a lower construction portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base, and fixes a platter in an upper surface, and has a back yoke supporting a ring shaped permanent magnet which is housed in an inner lower portion surface the hub, and a stator which has a plurality of radially protruding teeth, ones of the radially protruding teeth having a coil wound thereon, and protruded in a direction of an outer surface for thereby forming a radial construction, a the fluid and air hybrid dynamic pressure bearing, comprising:

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_____ an aero dynamic pressure bearing including which is formed in a structure that there are provided a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly and which includes a plurality of grooves and, wherein the aero dynamic pressure bearing forms an air layer having a certain strength so that an air flow that supports a load between a the hub and the bearing assembly after while the hub is operated; and

_____ a fluid dynamic pressure bearing including a spindle shaft having a plurality of grooves extending thereinto, which is implemented in a structure that a plurality of grooves are formed in at least one surface in the spindle shaft, a sleeve surrounding the same spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, and a certain fluid defining for a discharging path of a for static electricity is filled being provided in a pore- void formed between the spindle shaft and the sleeve for rotatably supporting the hub and forming a fluid dynamic pressure between the spindle shaft; and a structure that wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub; and the fluid dynamic pressure bearing is fixed about the a hub shaft which passes vertically through one end formed in a vertical direction of the interior the hub, and there are provided a ring shaped permanent magnet, and a back yoke which support the permanent magnet, wherein the sleeve is fixed to the hub, and the spindle shaft extends which is upwardly and downwardly extended and is fixed to the bearing assembly, and the sleeve is rotated rotates together with the hub.

30. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which forms a lower construction having an upper portion thereof, a hub which is rotatably installed in an the upper portion of the base and fixes a platter in an upper surface, and has a back yoke supporting a ring shaped permanent magnet and housed in an inner lower surfacee portion of the hub, and a stator which has a plurality of radially protruding teeth, ones of the radially protruding teeth having a coil

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wound thereon and protruded in a direction of an outer surface for thereby forming a radial construction, a the fluid and air hybrid dynamic pressure bearing, comprising:

_____ an aero dynamic pressure bearing which is formed in a structure that there are provided including a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, and which includes a plurality of grooves and wherein the aero dynamic pressure bearing forms an air layer having a certain strength so that an air flow that supports a load between the hub and the bearing assembly after while the hub is operated; and

_____ a fluid dynamic pressure bearing including a spindle shaft having which is implemented in a structure that a plurality of grooves are formed therein at least one surface in the spindle shaft, a sleeve surrounding the same spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, and a certain fluid for defining a discharging path of a for static electricity is filled being provided in a pore void formed between the spindle shaft and the sleeve, wherein the fluid for rotatably supporting the hub and forming a fluid dynamic pressure between around the spindle shaft; and a structure that wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub, and wherein the fluid dynamic pressure bearing is fixed about the a hub shaft which passes vertically through one end formed in a vertical direction of the interior the hub, and there are provided a ring shaped permanent magnet, and a back yoke which support the permanent magnet, and wherein the aero dynamic pressure bearing and the fluid dynamic pressure bearing are assembled or disassembled.

31. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which forms defines a lower construction portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base and fixes a platter in an upper surface, and has having a ring shaped permanent magnet housed in an inner lower surface portion thereof, and a stator which has a plurality of radially protruding teeth, ones of the radially protruding teeth having a coil wound thereon, and

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~~protruded in a direction of an outer surface for thereby forming a radial construction, a~~ the fluid and air hybrid dynamic pressure bearing, comprising:

_____ an aero dynamic pressure bearing which is formed in a structure that there are provided including a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, and which includes a plurality of grooves and wherein the aero dynamic pressure bearing forms an air layer having a certain strength so that an air flow that supports a load between a the hub and the bearing assembly after while the hub is operated;

_____ a fluid dynamic pressure bearing including a spindle shaft with which is implemented in a structure that a plurality of grooves are formed therein, at least one surface in the spindle shaft, a sleeve surrounding the same, and a thrust plate cooperating with an end of the spindle shaft, and a certain fluid for defining a discharging path of a for static electricity is filled being provided in a pore formed void between the spindle shaft and the sleeve, wherein the fluid for rotatably supporting the hub and formsing a fluid dynamic pressure between around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft within an upper portion of the hub, and wherein the fluid dynamic pressure bearing is fixed about a hub shaft which passes vertically through the hub ; and

_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said busing thrust being provided between respective ones of the ring shaped permanent magnet, a back yoke supporting the ring shaped permanent magnet, a the bearing assembly of the aero dynamic pressure bearing, and the stator, wherein said hub is integrally formed with the aero dynamic pressure bearing; and the aero dynamic pressure bearing is fixed to the sleeve.

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32. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base ~~which forms~~ defining a lower ~~construction~~ portion of the hybrid dynamic pressure bearing, a hub which is rotatably installed in an upper portion of the base ~~and fixes~~ a platter in an upper surface, and has a ~~ring shaped~~ permanent magnet in an inner lower surface ~~portion of the hub~~, and a stator which has a plurality of ~~radially protruding teeth~~, ~~ones of the radially protruding teeth~~ having a coil wound thereon, and protruded in a direction of an outer surface for thereby forming a radial construction, ~~a the~~ fluid and air hybrid dynamic pressure bearing, comprising:

_____ an aero dynamic pressure bearing including which is formed in a structure that there are provided a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, wherein the aero dynamic pressure bearing and which includes a plurality of grooves and forms an air layer having a certain strength so that an air flow that supports a load between a hub and the bearing assembly after while the hub is operated;

_____ a fluid dynamic pressure bearing including a spindle shaft having which is implemented in a structure that a plurality of grooves are formed therein, at least one surface in the spindle shaft, a sleeve surrounding the same spindle shaft, and a thrust plate proximate an end of the spindle shaft, and a certain fluid for defining a discharging path ~~of a~~ for static electricity is filled in a pore formed being provided between the spindle shaft and the sleeve, wherein the fluid for rotatably supporting the hub and forms ing a fluid dynamic pressure between around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with respect to the spindle shaft and is provided in an upper portion of the hub, and wherein the fluid dynamic pressure bearing is fixed about a hub shaft which passes vertically through an end of the hub; and

_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said bushing thrust being provided between

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respective ones of the ring shaped permanent magnet, a back yoke supporting the ring shaped permanent magnet, and a bearing assembly of the aero dynamic pressure bearing and the stator, wherein said aero dynamic pressure bearing is separately assembled, and the aero dynamic pressure bearing is fixed to the sleeve.

33. (Currently Amended) In a bearing of a spindle motor A hybrid dynamic pressure bearing of a spindle motor for use with a hard disk drive which includes a base which forms defining a lower construction portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base and fixes a platter, and a stator having in which a plurality of radially protruding teeth, ones of the radially protruding teeth each having a coil thereupon, are protruded in a direction of an outer surface in a radial shape, a the hybrid dynamic pressure bearing of a spindle motor, comprising:

an aero dynamic pressure bearing including which includes a disk shaped bearing assembly formed in a disk shape and forming defining an upper construction portion and a lower portion thereof, and a support member which is integrally formed with a the lower portion of the bearing assembly, and is compression-fixed to the base, and which is installed in a space formed by between the base and the hub, wherein the an aero dynamic pressure bearing which forms an air layer having a certain strength for supporting a load of an air flow between the hub and the bearing assembly after while the hub is operated, in such a manner that wherein a groove is formed in at least one surface among of an upper horizontal surface of the bearing assembly, and a lower horizontal surface of the bearing assembly, of the aero dynamic pressure bearing, a lower horizontal surface of the hub, an integral inner surface of the hub, and an inner surface of the a bushing thrust; and

a fluid dynamic pressure bearing including which obtains a static electricity path by filling a certain fluid such as an oil defining a static electricity path having a certain viscosity with respect to a static electricity generated in a peripheral portion of the hub, and platter and which wherein the fluid dynamic pressure bearing has an inner construction of one of a spherical

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shape, a semi-circular shape, a conical shape or a cylindrical shape, and wherein said fluid dynamic pressure bearing supportsing the center of the hub in the a radial direction and a thrust direction.

34. (Currently Amended) In A fluid and air hybrid dynamic pressure bearing for use with a spindle motor for a hard disk drive which includes a base which forms defining a lower construction portion of the spindle motor, a hub which is rotatably installed in an upper portion of the base and fixes a platter in an upper surface and defines an interior thereof, and has a ring shaped permanent magnet housed in an inner lower surface portion of the hub interior, and a stator which has a plurality of radially protruding teeth, ones of the radially protruding teeth having a coil wound thereon and protruded in a direction of an outer surface for thereby forming a radial construction, a the fluid and air hybrid dynamic pressure bearing, comprising:

an aero dynamic pressure bearing including which is formed in a structure that there are provided a disk shaped bearing assembly having a plurality of grooves extending thereinto, and a certain pore void surrounding the bearing assembly, and which includes a plurality of grooves and wherein the aero dynamic pressure bearing forms an air layer having a certain strength so that an air flow that supports a load between a the hub and the bearing assembly after while the hub is operated;

a fluid dynamic pressure bearing including a spindle shaft having which is implemented in a structure that a plurality of grooves are formed therein, at least one surface among a spindle shaft, a sleeve surrounding the spindle shaft, and a thrust plate cooperating with an end of the spindle shaft, wherein rotation and support points are fixed at a center which passes through the hub interior in a vertical direction, and a fluid for defining a discharging path of a for static electricity is filled being provided in a port void formed between the spindle shaft and the sleeve, wherein the fluid for rotatably supportsing the hub and formsing a fluid dynamic pressure between around the spindle shaft, wherein the fluid dynamic pressure bearing is fixed with

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respect to the spindle shaft, and wherein the fluid dynamic pressure bearing is fixed about a hub shaft which passes vertically through the hub interior; and

_____ a bushing thrust which is implemented in a structure that the fluid dynamic pressure bearing is fixed with respect to the spindle shaft formed in an upper portion of the hub and in which the fluid dynamic pressure bearing is fixed about the hub shaft which passes through one end formed in a vertical direction of the interior, said bushing thrust being provided between respective ones of the ring shaped permanent magnet, a back yoke supporting the ring shaped permanent magnet, a-the bearing assembly of the aero dynamic pressure bearing, and the stator.